

BACKGROUND OF THE INVENTION

The Anchor Assist was designed and created for boat anchoring to fill a void in the market for boat anchoring and retrieval of anchor systems utilizing mechanically designed anchor float retrieval systems. In this device, the anchor puller and buoy are able to be pulled through the wider roller and guide system without removal from the rope guide. The primary design difference, not previously available, is the use of a metal step roller bracket which is designed to have a wide enough throat space to accommodate the various buoy puller mechanisms (such as, but not limited to EZ Marine lifter, Ironwood Pacific puller, and other types) with vertical guides to keep the rope in the device while the puller transitions through it and buoy transitions over it. A tapered center roller guide (of UHMW or similar material), of large enough diameter allows the transition from rope end, past the lifter hardware and on to the anchor chain (when used) and directly to the anchor, the anchor settles to rest in the bracket on the gusset platform and UHMW guides in the bracket. A rope groove is cut in the center to help provide a positive center line position for the rope while at anchor. Outside non rolling right and left side guides fashioned from the same material as the main roller (UHMW plastic) provide a smooth protective surface for the rope to ride against when under power of retrieval and keeps the rope from contacting the outer extremities of the metal mount/rest roller framework. On each side of the front exterior retaining surfaces of the framework are vertical cylindrical guides to retain the rope within the roller (chock) retaining area of the Anchor Assist both during regular anchoring operations and during anchor retrieval operations. These guides are of two types, depending on the version selected. The regular version is non rolling. The deluxe version is a rolling design and revolves vertically when rope contact is made on these side rollers instead of the primary front roller.

The framework can be of two design variations. One is a two-piece construction. The mounting base is formed from of a single piece of metal cut in a flat sheet for shapes and holes then bent into the specified 90x90 degree "U" shape. A single gusset plate is then fitted and welded in place to provide rigidity and the anchor rest platform in the Anchor Assist.

The other method, providing nearly identical results is to construct it of four flat pieces, two mirror images of the upright pieces and the bottom and gusset plates. The four pieces are then

Invention: Anchor Assist - Ken Richardson 503-668-1274, Larry Richardson 503-502-0595

welded together resulting in a nearly identical product, with the same applications as discussed above.

The design helps reduce the chance of an anchor that is being retrieved from swinging and hitting the sides of the boat as it is pulled. The Anchor Assist it keeps it away from the sides and gunnel as it comes into the rest position. Other pullers require removing the rope from the anchor chock and pulling the buoy, retrieving mechanism, lead chain (when used) and anchor up and over the side of the bow, often damaging the gunnel or sides of the boat.

The Anchor Assist provides a ready position for the anchor to rest prior to releasing it for anchoring. A securing mechanism is designed into the frame that allows it to be securely fixed in place for movement from an anchor site to another anchor site or for travel via water or boat trailer.

The Anchor Assist also provides a cantilever position for the anchor to rest in its ready position on the bow. This design allows for a single person to release and drop the anchor with a lift of the rope from nearly any clear portion of a boat, i.e., near or at the steering wheel or the walk through bow window of many boat designs. This is of significant importance to persons such as guides and charter captains who might be responsible for all boat anchoring activities alone or for those boat owners/operators who can't or do not want to rely upon others to anchor for them.

The Anchor Assist provides a solid leverage and large rope surface to allow use of the anchor retrieval systems from a bow attachment point. This is a significant safety factor for anchor retrieval in heavy current or rough water situations. When the pulled anchor is ready for retrieval, the rope is simply pulled through the Anchor Assist until the anchor comes to rest in the Anchor Assist.

The device works equally well without mechanical buoy type retrievers for anchoring and retrieving the anchor manually.

BRIEF SUMMARY OF THE INVENTION

The Anchor Assist is a wider and higher type of "U" shaped type of boat bow chock-rope guide and anchor staging and storage device which allows buoy type anchor retrieval devices to be pulled through the guide without rope removal. It is designed to allow pulling of the anchor via the buoy retrieval system with the rope routed through the Anchor Assist and attached to the bow or other forward cleat point. It is designed to allow the resting anchor to be easily released from its storage-rest position by raising the anchor rope. This tipping of the anchor allows it to release and roll off the bow rest position into the water. The "U" shaped rest by use of a formed frame, gusset platform, rollers and guides provide a sure rope guide and a secure platform for anchor retrieval and storage. A pin device is used to secure the anchor in the rest position during transition or travel. The anchor lies on the rest, ready to release without the pin device installed. Other bow anchor rests and chocks do not allow retrieval of the anchor and retrieval mechanism without rope removal from the bow chock or guide. The anchor is in position for the next release when brought to rest in the Anchor Assist. The device works equally well without mechanical buoy type retrievers for anchoring and retrieving the anchor manually. This device provides inventive changes with advantages over other existing designs.

BRIEF DESCRIPTION OF DRAWINGS

FIG. 1 is a flat pattern layout of the Anchor Assist “U” shaped bracket laid out by a commercial fabricator (Versatech, Portland, Oregon) with shapes cut and holes formed prior to bending into the “U” shape required to form the mounting base and sides. Fabrication is not limited to a single fabricator, and others can provide similar or identical service. The frame of the bracket can also be fabricated by hand with appropriate tools.

FIG. 2 is a rear view (identical to front view) of the bracket after being formed by the fabricator but before the addition of the welded gusset plate.

FIG. 3 is a side view of the bracket identifying overall measurements, shapes, hole locations and sizes.

FIG. 4 is a rear view showing the gusset plate welded in place, with a center roller. Also shown are outer horizontal and vertical guides for one side (the opposite side is an identical mirror image for these two parts). The bolt head and thread end, washer and a lock nut used for the center roller spindle is shown where visible on the right and where it would otherwise have been concealed in the other UMHW plastic guide had it been drawn in. The left guides were left undrawn in this view to allow drawing this component clearly.

FIG. 5 is a front view of bracket, roller and guides, again with only one side of two of the outer guides drawn in. The opposite side guides are a mirror image unless specifically shown otherwise.

FIG. 6 is a top view of the bracket with the gusset plate shown welded in place in relation to the bottom base.

FIG. 7 is a top view showing the UMHW roller and all of the UMHW guides.

FIG. 8 is a side view of the UMHW outer guides showing the counter sunk hole to obscure the

bolt head and lock nut on each end. Also shown is the center hole for the bolt. FIG. 8 also shows the spindle hole for the center roller spindle bolt.

FIG. 9 is a side view showing the relationship of the upper fixed guide in relation to the lower outside guide. It also shows the base and roller-guide assembly related to the bow mount.

FIG. 10 is a top view showing the alternate upper roller and bracket (instead of a fixed guide) and modification of bracket A that is required.

FIG. 11 is a side view of modification (V) required for (S) installation and operation.

FIG. 12 is a side view and [rear view] of the alternate upper roller bracket and roller and relationship to lower outside guide.

FIG. 13 is a bottom view of the mounting holes (and optional hole location) for the most common boat applications.

FIG. 14 is direct front view with perspective of the fully assembled **Anchor Assist** and the elevation of the roller, guide and frame in relation to the boat bow deck.

LIST OF REFERENCE MARKS USED ON DRAWINGS (Capitol Letter preceding note)

With regard to reference letters used, the following letters are used throughout the drawings. These drawings are produced for use with the provisional patent application only as a reference to assist in understanding the invention and are not intended to become a part of the permanent record as called out in 35U.S.C.113. Due to 35U.S.C.113 requirements for drawings on a Utility Patent application, drawings meeting all requirements will accompany the forthcoming submission.

- A- "U" shaped bracket forming the base and two sides of the Anchor Assist
- B- The gusset plate welded in place between the two sides of A. forming the anchor rest platform. Can be adjusted to a milled countersink to improve consistency in placement.
- C-The weld between two un-joined metal parts as shown.
- D-The UMHW plastic 3-1/2 inch diameter tapered center roller at the front of the Anchor Assist.
- E-The UMHW plastic outer 3-1/2 inch diameter horizontal guides, which are interchangeable for either side.
- F- The UMHW plastic outer 1-1/2 inch diameter vertical guides.
- G-1/4 inch dia, 2 inch long, threaded stainless steel countersunk or phillips pan head screw for F.
- H- 1/4 inch locknut for G.
- H1-the holes in A for I.
- H2-the bottom holes in A for G.
- H3-the top holes in A for G.
- H4-the top holes for U.
- H5-the bottom storage hole for U.
- I- 1/2 inch dia, 7 inch long hex head stainless steel bolt, un-threaded from hex head end to a point at least through the opposite side 1/2 inch hole in A with the hex head side part E installed.
- J- 1"outside dia, 1/2 hole stainless steel washer.
- K-1/2 stainless steel lock nut (Teflon insert or similar type).
- L-a 1-1/2 inch diameter by 1/2 inch deep counter sunk hole in the outer side of E.
- a 1/2 inch diameter hole drilled at the center radius of part D and E longitudinally through the

center of the cylinder.

N-the 45 degree angled portion of the bracket (either side) running from top to back apex.

O-NOT USED

P-the portion of the two side brackets which make up the 1-3/4 roller support radius.

Q-Alternative method of making base plate and two sides into Part A.

R-Bracket for alternate front upper vertical roller guide.

S-Roller for alternate front upper vertical roller guide, 2" Dia x 2-1/4 long with centered (Y) hole.

T-3/8 inch stainless steel hex head bolt (used as roller spindle).

U- 5/16 inch diameter x 4 1/2 inch long cotter-less carriage pin

V- a 3/4" x 2-7/8 (A) bracket modification for an alternate roller assembly.

X- a 3/8" threaded (drilled & tapped) hole in (R)

Y-3/8" x 2-1/4 hole.

DETAILED DESCRIPTION OF THE INVENTION

(Description of the preferred Embodiments - How to make and use it.

[0001]A flat pattern Fig1(A) is laid out on 1/4 (.025) inch 5052 aluminum (or equivalent alternative) according to Figure 1.

[0002]Holes of the specified diameters are punched or drilled per (H1), (H2), (H3), (H4), (H5), (H6), (H7), (H8) , Fig 1, Fig 3.

[0003]The outside perimeter lines are cut from 0001as specified, means of choice is computer-assisted plasma cutter or laser, or by means of a manually operated bandsaw Fig 1.

[0004]The single piece flat pattern design (Fig1) is intended to be bent by a commercial fabricator in press equipment to a U shape (Fig2) with the specified result of a “U” shaped base and two sides as viewed in Fig 2.

[0005] An alternative is addressed in Fig 2, (Q) should a press not be available and constitutes a three-piece construction of base and two sides welded at 90 degree angles to achieve an exact facsimile of the formed part in [0004]with the inclusion of detail (Q).

[0006]A gusset plate (B) is placed as shown in figure 4 and Figure 6, and a clamp is used to draw both sides tight to (B).

[0007](B) is welded (C) to (A) as shown by placing a 2 ½ (2.5) inch spacer between the base of A and B.

[0008]A piece of 3-1/2 inch UMHW plastic cylinder is cut to lengths for one (D) and two (E) parts, Fig 4, Fig 5, Fig 7.

[0009]The piece cut for each of 0008 is drilled centrally with a spindle hole(M) Figure 8, (D) and (E).

[0010] Part (D) is placed on a lathe and turned to specifications on Figure 5.

[0011] Parts (E) are drilled with a countersunk hole as specified for (L) on Figure 5 and Figure 8.

[0012] Part (I) Fig 4 is fitted with one (J), inserted through one (E) with the hex head of part (I) Fig 5 fitting into (L).

[0013] Part (I) is then placed through first (H1) Fig 3, then through (D) Fig 4 & Fig 5, via (M) Fig 8, through the second (H1) Fig 3.

[0014] The second part (E) Fig 5 is placed on (I) Fig 5 followed by one (J) and (K) Fig 4.

[0015] (I) and (K) are tightened until secured, leaving (D) Fig 4, Fig 5 to turn freely between (P) Fig 3 & Fig 6 on right and left sides.

[0016] Fig 7, (F) Top view and Fig 4, (F) Rearview show the length and diameters of component. 1/8 inch of material is removed along a vertical (longitudinal) axis to form a flat mount surface on each of two parts (F) (utilizing a planer, table saw or similar method).

[0017] A 1-3/4 inch radius cut is made horizontally and perpendicular to the flat surface created in [0016]. Left and right sides are opposite mirror images of each other. The radius of the cut is 1-3/4" and is aligned so that it closely matches the curvature of (E) on each side Fig 4, (F) and Fig 9.

[0018] Parts (F) are secured to (A) by (G) inserted from the inside face of (A) through (H2) and (H3), through (F) and secured on the exterior with (H), Fig 7.

[0019] Part (U) cotter-less carriage pin is placed in (H4) Fig 7, to secure the anchor. It is placed in (H5) Fig 3, while anchor is in use or in ready position for release. This model is ready to install on boat. Proceed to [0026].

Invention: Anchor Assist - Ken Richardson 503-668-1274, Larry Richardson 503-502-0595

[0020] For Deluxe version, omit [0016-0018 and start with this step. Bracket (A) is modified according to (V), Fig 11. Modification can be made to formed part or incorporated into [0001].

[0021] A 4-3/4" long piece of 1-3/4 x 3 aluminum channel is cut according to (R) Figure 10.

[0022] A hole (X), Fig 12, to be tapped for the threaded end of a 3/8" bolt (T) is drilled in the bottom and tapped with threads (appropriate for T). The top hole at (T) head end is 3/8".

[0023] (Y) Fig 12 is cut according to (Rear View-R). (Y), is drilled in (S) to Match (X) allowing for tolerance of the roller to rotate on spindle of (T). Side view -II, Fig shows roller relationship (S) to guide (E).

[0024] (R) is welded (C) to (A), Fig10, Fig 12. Hole (H4) in (A) is drilled through (R).

[0025] Roller (S) is placed in (R). (T) is inserted through (R) and (S) and into threaded hole (X).

[0026] The Anchor Assist is installed on user's boat by means of (H6) and (H7) Fig 1, Fig 10 and Fig 13, 5/16 x 1 inch, 24 thread Stainless Steel hex head bolts or pan head phillips screws, washers and lock nuts. Location should be as far forward on the bow deck as possible while retaining full contact between the base of (A) and the deck. A representative position is demonstrated in figure 9. The puller is designed to extend the rollers beyond the bow end. The resulting completed mechanism from the previous steps of manufacture offers a difference not previously available by means this metal step roller bracket which is designed to have a wide enough throat space to accommodate the various buoy puller mechanisms (such as, but not limited to EZ Marine lifter, Ironwood Pacific puller, or other similar pullers) allowing retrieval and release of the anchor without removal of the rope from the bow chock position which the Anchor Assist replaces.

MEANS OF USE

[0027] Set anchor on Anchor Assist, with tines of the anchor extended slightly past assembly. It should rest on gusset and center roller.

[0028] Ready rope release of anchor retrieval system and/or prepare rope for release.

[0029] Approach anchor drop area.

[0030] Lift rope and tip anchor, readily prepared to feed rope allowing the anchor to drop to bottom

[0031] Upon releasing adequate rope for safe anchoring, tie or cleat off rope. Rope remains through the "U" in Anchor Assist. This is positioned between the vertical side guides and transitions over the roller guide.

[0032] For safest retrieval of the anchor, assure securement of rope then move the boat safely upstream avoiding rope and retrieval buoy as per mechanisms' instructions. Rope will remain in "U" while pulling, ready for rope retrieval.

[0033] Upon confirming Anchor has been retrieved by buoy and the boat is clear of downstream obstructions and boats, untie rope from securement then retrieve rope by pulling. Rope remains in "U." Easiest retrieval is achieved if the boat is aligned with the bow pointing toward the buoy to take advantage of the center roller.

[0034] Upon reaching the retrieval buoy mechanism, firmly pulling the rope will cause the mechanism, buoy, anchor lead chain (if used) and the anchor to roll up over the center roller and the anchor will settle into the storage and ready position for either another anchor drop, or anchor securement with the cotter-less retainment pin.

[0035] With anchor systems, not utilizing a buoy retrieval system, simply retrieve the rope as the boat slowly advances forward. When the anchor is lifted from bottom and pulled to surface, continue pulling on rope firmly and anchor will roll over center roller and rest in ready position.

[0036] Modifications in design and variations upon this can obviously be made on this present invention in light of the above teachings. These details in the above description illustrate some preferred embodiments and should not be construed as a limitation on the scope of the invention.